Volume Contents

NUMBER 1

Matthias Jarke and **Dennis Shasha** — 1 *Information Systems* takes a new direction

Janis Bubenko, Matthias Jarke and **Keith Jeffery** — 2 Guest Editorial for the Special Issue on Extending Database Technology

R. J. Miller, Y. E. Ioannidis and **R. Ramakrishnan** — 3 Schema equivalence in heterogeneous systems: bridging theory and practice

Martin Buchheit, Manfred A. Jeusfeld, Werner Nutt and **Martin Staudt** — 33 Subsumption between queries to object-oriented databases

Rakesh Agrawal and **Linda G. DeMichiel** — 55 Type derivation using the projection operation

H. Pirahesh, B. Mitschang, N. Südkamp and **B. Lindsay** — 69 Composite-object views in relational DBMS: an implementation perspective

X. Zhao, R. G. Johnson and **N. J. Martin** — 89 DBJ—a Dynamic Balancing Hash Join algorithm in multiprocessor database systems

Gustavo Alonso, Radek Vingralek, Divyakant Agrawal, Yuri Breitbart, Amr El Abbadi, Hans-J. Schek and **Gerhard Weikum** — 101 Unifying concurrency control and recovery of transactions

NUMBER 2

Matthias Jarke and **Dennis Shasha** — 117 The new Editorial Board of *Information Systems*

Invited Project Review

Joachim W. Schmidt and **Florian Matthes** — 121 The DBPL project: advances in modular database programming

Manolis Koubarakis — 141 Database models for infinite and indefinite temporal information

P. van Bommel, Gy. Kovács and **A. Micsik** — 175 Transformation of database populations and operations from the conceptual to the internal level

Reports and Theses

Michael Unwalla — 193 A mixed transaction cost model for coarse grained multi-column partitioning in a shared-nothing database machine

Stefan Eherer 193 A software environment for the cooperative design of hypertext documents

195 Call for Papers

NUMBER 3

ADVANCED INFORMATION SYSTEMS ENGINEERING

Colette Rolland 197 Introduction

J. Brunet, C. Cauvet, D. Meddahi and **F. Semmak** 199 Applying object-oriented analysis on a case study

Carme Quer and **Antoni Olivé** 211 Determining object interaction in object-oriented deductive conceptual models

Andreas L. Opdahl and **Guttorm Sindre** 229 A taxonomy for real-world modelling concepts

Klaus Pohl 243 The three dimensions of requirements engineering: a framework and its applications

Valeria De Antonellis, Silvana Castano and **Lorenzo Vandoni** 259 Building reusable components through project evolution analysis

Paul Johannesson 275 Schema standardization as an aid in view integration

V. Lalioti and **P. Loucopoulos** 291 Visualisation of conceptual specifications

NUMBER 4

Invited Project Review

Rosana S. G. Lanzelotte, Patrick Valduriez, Mohamed Zaït and **Mikal Ziane** 311 Industrial-strength parallel query optimization: issues and lessons

A. H. F. Laender, M. A. Casanova, A. P. de Carvalho and **L. F. G. G. M. Ridolfi** 331 An analysis of SQL integrity constraints from an entity-relationship model perspective

Victor M. Markowitz 359 Safe referential integrity and null constraint structures in relational databases

379 Call for Papers

NUMBER 5

Invited Project Review
Gerhard Weikum, Christof Hasse, Axel Mönkeberg and **Peter Zabback** — 381 The COMFORT automatic tuning project

Y. Manolopoulos and **N. Lorentzos** — 433 Performance of linear hashing schemes for primary key retrieval

NUMBER 6

Invited Project Review
Betty Salzberg — 447 On indexing spatial and temporal data

Stefano Ceri and **Jennifer Widom** — 467 Deriving incremental production rules for deductive data

Edward Sciore — 491 Query abbreviation in the entity–relationship data model

NUMBER 7

Christian S. Jensen, Michael D. Soo and **Richard T. Snodgrass** — 513 Unifying temporal data models via a conceptual model

Chiang Lee and **Kien A. Hua** — 549 A self-adjusting data distribution mechanism for multi-dimensional load balancing in multiprocessor-based database systems

Michael Vassilakopoulos and **Yannis Manolopoulos** — 569 Analytical comparison of two spatial data structures

Isamu Kobayashi — 583 Complete decompositions of join dependencies

NUMBER 8

DISTRIBUTED INFORMATION SYSTEMS IN BUSINESS AND MANAGEMENT

Matthias Jarke and **Dennis Shasha** — 605 Message from the Editors-in-Chief

Invited Project Review
August-Wilhelm Scheer — 607 ARIS Toolset: a software product is born

Wolfgang König — 625 Guest Editorial

Eberhard Stickel, Jens Hunstock, Anke Ortmann and **Jan Ortmann** — 629 Data sharing economics and requirements for integration tool design

Andreas Oberweis, Gabriele Scherrer and **Wolffried Stucky** 643 INCOME/STAR: methodology and tools for the development of distributed information systems

St. Kirn, R. Unland and **U. Wanka** 661 MAMBA: automatic customization of computerized business processes

T. Heissel, H. Krallmann, U. Meyer, M. Müller-Wünsch, C. Schopf and **A. Woltering** 683 A generic approach for computer-assistance of complex decision processes

Peter Mertens, Jürgen Falk and **Stefan Spieck** 699 Comparisons of agent approaches with centralized alternatives based on logistical scenarios

711 Call for Papers

Author Index

Agrawal D., 101
Agrawal R., 55
Alonso G., 101

van Bommel P., 175
Breitbart Y., 101
Brunet J., 199
Bubenko J., 2
Buchheit M., 33

de Carvalho A. P., 331
Casanova M. A., 331
Castano S., 259
Cauvet C., 199
Ceri S., 467

De Antonellis V., 259
DeMichiel L. G., 55

Eherer S., 193
El Abbadi A., 101

Falk J., 699

Hasse C., 381
Heissel T., 683
Hua K. A., 549
Hunstock J., 629

Ioannidis Y. E., 3

Jarke M., 1, 2, 117, 605
Jeffery K., 2
Jensen C. S., 513
Jeusfeld M. A., 33
Johannesson P., 275
Johnson R. G., 89

Kirn St., 661
Kobayashi I., 583
König W., 625
Koubarakis M., 141
Kovács Gy., 175
Krallmann H., 683

Laender A. H. F., 331
Lalioti V., 291
Lanzelotte R. S. G., 311
Lee C., 549
Lindsay B., 69
Lorentzos N., 433
Loucopoulos P., 291

Manolopoulos Y., 433, 569
Markowitz V. M., 359
Martin N. J., 89
Matthes F., 121
Meddahi D., 199
Mertens P., 699
Meyer U., 683
Micsik A., 175
Miller R. J., 3
Mitschang B., 69
Mönkeberg A., 381
Müller-Wünsch M., 683

Nutt W., 33

Oberweis A., 643
Olivé A., 211
Optahl A. L., 229
Ortmann A., 629
Ortmann J., 629

Pirahesh H., 69
Pohl K., 243

Quer C., 211

Ramakrishnan R., 3
Ridolfi L. F. G. G. M., 331
Rolland C., 197

Salzberg B., 447
Scheer A.-W., 607
Schek H.-J., 101
Scherrer G., 643
Schmidt J. W., 121
Schopf C., 683
Sciore E., 491
Semmak F., 199
Shasha D., 1, 117, 605
Sindre G., 229
Snodgrass R. T., 513
Soo M. D., 513
Spieck S., 699
Staudt M., 33
Stickel E., 629
Stucky W., 643
Südkamp N., 69

Unland R., 661
Unwalla M., 193

Valduriez P., 311
Vandoni L., 259
Vassilakopoulos M., 569
Vingralek R., 101

Wanka U., 661
Weikum G., 101, 381
Widom J., 467
Woltering A., 683

Zabback P., 381
Zaït M., 311
Zhao X., 89
Ziane M., 311

Typeset in Great Britain by BPC Digital Techset Ltd, Exeter. Printed by BPC Wheatons Ltd, Exeter